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Abstract



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S8b. C1 Cross comparison of nitrogen sources, sinks and transport within river basins: the Italian Nitrogen Network initiative (INN)

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Nitrogen deficit or excess within ecosystems imply different problems. The shortage of this key nutrient strongly affects agricultural productions while its abundance ("too much of a good thing") determines water eutrophication and associated setbacks. At the beginning of 2014 a national initiative was launched to researchers dealing with nitrogen, including limnologists, ecologists, biologists, agronomists and hydrogeologists. The initiative (INN, Italian Nitrogen Network) consists in sharing a common methodology to evaluate the nitrogen budget at the watershed level. Specific meetings were organized to share and discuss a common method for data collection and budget calculation. Most necessary data can be free downloaded from national statistical databases and have the municipality resolution. They include agricultural productions in terms of surfaces, typologies and amounts of farmed animals. All input data are converted into nitrogen units by means of site-specific, appropriate coefficients. An inventory of input (n associated to manure, synthetic fertilizers deposition, biological fixation) and output terms (crop uptake, ammonia volatilization, denitrification in soils) is produced and a net budget is calculated across the agricultural lands. As for most Italian rivers water flows and hydrochemical data at the closing sections are available, N export from each basin can be computed and compared to the budget. This, together with detailed knowledge of accessory information (e.g. population density, land use, slopes, presence of wetlands, soil permeability) allows to infer about the system capacity to metabolize N loads and its relevance in planning appropriate management actions. At present some budgets are already available (Oglio, Mincio, Volano, Agogna, Parma, Secchia, Adda, Panaro), while others are in progress (Adige, Reno, Tevere, Scrivia, Alento, Lambro, Olona, Ticino, Enza, Crostolo, Arborea Plain, Venice Lagoon Basin). We present here the initiative, the aims, material and methods, the investigated watersheds and the perspectives.